

REMARKS

By this Amendment, Applicants amend claims 1, 7, and 15 to more appropriately define the invention. Claims 1-21 remain pending.

In the Office Action, the Examiner rejected claims 1-21 under 35 U.S.C. § 103(a) as unpatentable over Shibata et al., U.S. Patent No. 5,371,373 ("*Shibata*") in view of Shimada et al., U.S. Patent No. 5,348,902 ("*Shimada*"), and further in view of Murai et al., U.S. Patent No. 5,250,812 ("*Murai*"). In response, Applicants respectfully submit that a *prima facie* of obviousness has not been established for claims 1-21 because *Shibata*, *Shimada*, and *Murai*, whether taken alone or in combination, fail to teach or suggest all the claim elements.

In order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim elements. Furthermore, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." M.P.E.P. § 2143.03, ed. 8, rev. 1 (Feb. 2003) (quoting *In re Wilson*, 424 F.2d 1382, 1385 (C.C.P.A. 1970)). Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or to combine reference teachings. Third, there must be a reasonable expectation of success. M.P.E.P. § 2143 at 2100-122 to 127.

According to aspects related to implementations of the present invention, a standard cell library has first placement positions of shaping holes on the CP aperture. Due to this, the invention has the relational database between the shaping holes on the CP aperture and the standard cells in the standard cell library. The standard cell library does not need to have the data of the patterns of the standard cells. Because the shaping holes on the CP aperture are the

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same patterns as the patterns of the standard cells, the charged beam exposure device of the invention only decides the second placement positions of the standard cells on the substrate.

Specifically, claim 1 is directed to a charged beam exposure for delineating patterns of a system on a substrate to describe the system in a logic expression, to convert the logic expression into a connection of standard cells, and to delineate patterns of the standard cells on the substrate comprising a combination of elements including, *inter alia*, “standard cell library recording means for recording a standard cell library having an information configured to designing the pattern of the system by using the standard cells, and for recording the standard cell library having first placement positions of the shaping holes on said CP apertures related to the standard cells corresponding to the shaping holes.” Independent claim 7 is directed to an exposure pattern data generation apparatus and includes similar recitations.

Shibata is directed to an electron beam lithography apparatus which includes a lithography data preparation unit for classifying input data into repetitive and non-repetitive patterns. *Shibata*, Fig. 3. *Shibata* discloses that the LSI pattern data is created using a standard LSI-CAD/DA system. The Examiner alleged that *Shibata* implies the use of a standard cell library in the CAD system. (OA at 3.) *Shibata* does not explicitly disclose the type of cell library used in forming the LSI pattern data, as was admitted by the Examiner. (OA at 3.) Thus, *Shibata* fails to disclose that the cell library has first placement positions of the shaping holes on said CP apertures.

Therefore, *Shibata* fails to teach or suggest at least a charged beam exposure comprising, *inter alia*, “standard cell library recording means for recording a standard cell library having an information configured to designing the pattern of the system by using the standard cells, and for recording the standard cell library having first placement positions of the shaping holes on said

CP apertures related to the standard cells corresponding to the shaping holes,” as recited in claims 1 and 7.

Shimada is directed to a method for designing a cell pattern for use with different design automation (DA) systems. *Shimada* discloses that the cells designed by the DA systems are divided into logic function portion and an input/output portion. *Shimada* discloses that the cell patterns can be transferred to different DA systems by modifying the input/output portion. *Shimada*, Fig. 4. However, *Shimada* discloses using a conventional cell library and does not disclose that the standard cell library has first placement positions of the shaping holes on said CP apertures related to the standard cells corresponding to the shaping holes.

Therefore, *Shimada* fails to teach or suggest at least a charged beam exposure comprising, *inter alia*, “standard cell library recording means for recording a standard cell library having an information configured to designing the pattern of the system by using the standard cells, and for recording the standard cell library having first placement positions of the shaping holes on said CP apertures related to the standard cells corresponding to the shaping holes,” as recited in claims 1 and 7.

Murai is directed to an electron beam lithography apparatus. *Murai* discloses that the apparatus comprises an electron gun 21, electron lenses 23 and 24, deflection lenses 25 and 26, and first and second aperture plates 29 and 210. *See Murai*, Fig. 2. *Murai* discloses that the second aperture plate includes apertures for forming shapes based on CAD data. *Murai*, col. 4, lines 3-50. *Murai* discloses that the CAD data corresponds to data of non-repetitive pattern and repetitive patterns. The CAD data is determined by dividing design data into random patterns and repetitive patterns. *Murai*, col. 4, lines 11-21. Thus, *Murai*’s CAD data corresponds only to the general information of the repetitive pattern and non-repetitive patterns.

Therefore, *Murai* fails to teach or suggest at least a charged beam exposure comprising, *inter alia*, “standard cell library recording means for recording a standard cell library having an information configured to designing the pattern of the system by using the standard cells, and for recording the standard cell library having first placement positions of the shaping holes on said CP apertures related to the standard cells corresponding to the shaping holes,” as recited in claims 1 and 7.

Thus, *Shibata*, *Shimada*, and *Murai*, whether taken alone or in combination, fail to teach or suggest all the elements of claims 1 and 7. Thus, claims 1 and 7 are allowable. Claims 2-6 are allowable at least due to their dependence from allowable claim 1. Claims 8-14 are allowable at least due to their dependence from allowable claim 7.

Furthermore, claim 15 is directed to an exposure pattern data generation method for delineating patterns of a system on a substrate to describe the system in a logic expression, to convert the logic expression into a connection of standard cells, and to delineate patterns of the standard cells on the substrate, comprising a combination of elements including, *inter alia*, “recording a standard cell library having an information configured to designing the pattern of the system by using the standard cells, and recording the standard cell library having first placement positions of the shaping holes on said CP apertures related to the standard cells corresponding to the shaping holes.”

As mentioned above, *Shibata*, *Shimada*, and *Murai* fail to teach or suggest at least an exposure pattern generation apparatus using a standard cell library as recited in the claims. Since *Shibata*, *Shimada*, and *Murai* fail to teach or suggest a system using the standard cell, they also fail to teach or suggest at least an exposure pattern data generation method using the standard

cell library. For at least this reason, claim 15 is allowable. Claims 16-21 are allowable at least due to their dependence from allowable claim 15.

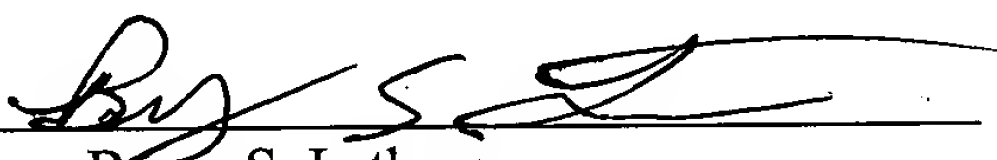
In view of the foregoing, Applicants respectfully request the reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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